Flying Safety

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COVER

A frequent cause of accidents in the early days of military aviation was the forced landing or subsequent takeoff from an unimproved field. The plane on the cover, a JN4H, was landed in a cotton field when engine trouble developed. After the engine had been adjusted the pilot attempted to take off parallel with the furrows. A crosswind drifted the biplane into a wagon when the pilot failed to correct his course. See page 14 for the accident picture from 1921 to 1949.

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OUTSTANDING AIRMEN

Every example of pilot error resulting in an accident is reported in one publication or another. But numerous examples of outstanding feats of airmanship often go unmentioned. Commanders and flying safety officers are invited to tell the editors of FLYING SAFETY about such flights. Whenever superior airmanship, piloting or maintenance saves an airplane or crew from disaster, we want to publish the story to the entire U. S. Air Force. The personnel concerned deserve a "well done" on these pages.

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SHARE YOUR IDEAS

FLYING SAFETY Magazine welcomes comments, criticisms and editorial contributions from all members of the United States Air Force. Readers can help the magazine promote safe flight by offering information on procedures, equipment or training methods that have been effective in decreasing aircraft accidents. Address your letters direct to the Editor, FLYING SAFETY Magazine, c/o 1002 I.G.U., San Bernardino, Calif.

FLYING SAFETY

DEPARTMENT OF THE AIR FORCE

The Inspector General, USAF, Directorate of Flying Safety,
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ONLY THE BEST CAN BE SAFE PILOTS

Loss of enthusiasm for piloting and lack of interest in maintaining flying proficiency are the primary obstacles to flying safety. No one questions the necessity for constant practice on the part of a golfer if he is to maintain his proficiency; but how much more important it is for a pilot to practice his profession. When over 50 per cent of all aircraft accidents are attributed to pilot failure, it is evident that too many Air Force pilots have become apathetic about flying.

While lack of familiarization with aircraft and the taking of needless risks have long been recognized as the primary causes of pilot failure, lack of enthusiasm and desire to fly are at the root of the problem.

Much has been said about the need for uniformity of controls in aircraft. Uniformity would make flying safer and it should be accomplished as soon as possible to reduce pilot failure, but it will not solve the problem.

So long as there are those who fly only the bare minimum and look for fair weather conditions to get in a four-hour flight, the rate of pilot failure accidents will remain high. We can expect our graph lines to start down only when apathy is eliminated.

Recently at a base of the Air University it was determined that permanent party pilots had been responsible for 80 per cent of the accidents, and a review of these pilots' records indicated that they were flying a bare minimum number of hours each month. Flying being accomplished by student officers was scheduled and conducted under close supervision and had been relatively free from accidents.

After a careful analysis of this situation, a program was established for closer supervision of flying activities of permanently-assigned pilots. All flight itineraries proposed by officers with less than six years' service and 1500 hours now must be passed upon by the responsible group commander, division head, or AC/S Operations for their respective personnel.

Increased emphasis was placed on transition under the close supervision of an Operations Officer, including an intensified program for newly arrived pilots. In addition, each permanently assigned pilot was required to accomplish a prescribed number of flying hours each month, to include a minimum of one hour night and two hours hood or instrument flying.

These minimums were required regardless of the status of the minimum flying proficiency requirements. Such action prevents such things as a "four-hour-a-month" pilot, by keeping all pilots at top proficiency, and in this case resulted in an immediate lowering of the station accident rate.

Positive action, as indicated above, accomplished a desired result. A continuing effort along this line will prevent future trouble. In order to insure the lowest accident rate possible in the Air Force, and thus reduce the cost in lives and dollars of aircraft accidents, commanders, pilots and airmen must be made to realize that it is of paramount importance to make Air Force flying safe.

Needless risks are frequently taken by those suffering from an inferiority complex—those who are willing to endanger their lives, the lives of others and their planes merely to "save face." The pilot who refuses to RON for fear he might be regarded as a "sissy" is juvenile in his thinking.

Our recruiters use the slogan "Only the best can be aviation cadets"—they must be superior youths—well developed mentally and physically.

It is equally true that only the best can fly with a maximum of safety. Earning his wings doesn't make a man a pilot for a normal life span of years. He must keep alive and he must remain in top form, mentally and physically. There is no safety in the airplane unless there is enthusiasm and proficiency in the cockpit.

GEORGE C. KENNEY
General, USAF
Commanding General, Air University

THE FIRST

"It is evident from the figures that the extra hazard due to flying has been greatly reduced. In fact, it is twice as safe to fly now as it was three years ago. Accidents at present are much less frequent . . . although 13 people have been killed in the past 37 months."

This was the accident picture as it was presented to the Chief of Staff of the U. S. Army in a report on aviation mortality in 1914. Army aviation was then six years old.

This report included detailed accounts of the first 11 accidents in the history of military aviation. Among these accidents were the first materiel failure, first pilot error accident, first weather accident, first violation, and other "firsts" of the various types of accidents as we record them today.

The first materiel failure accident occured on September 17, 1908. The accident was reported as follows:

"Mr. Orville Wright was flying the original Wright type of machine for acceptance test at Fort Myer, Virginia, with Lt. T. F. Selfridge as passenger on September 17, 1908, when one of the propellers broke, the machine being at that time about 75 feet from the ground. The machine side-slipped and nose-dived, striking the ground with such force as to fatally injure Lieutenant Selfridge and break Mr. Wright's leg. Cause of accident: Breaking of propeller and consequent loss of lift in the machine."

Thus, Lt. T. F. Selfridge became the first victim of an Army aircraft accident.

It was three years before another fatal accident occurred. The accident began with a rough landing. The scene was San Antonio, Texas.

ELEVEN.....

"From the evidence given, the Board finds that Lt. G. E. M. Kelly had made a flight of approximately five minutes duration, in a Curtiss bi-plane, at about 7 a.m., May 10, 1911, under good atmospheric conditions. As a result of this flight he met his death.

"He had made a not abnormally hard landing. Upon landing at least one and possibly both sides of the seat fork were broken at a point between the pilot seat and foot rest. At the same time it appears that one diagonal bamboo brace from front wheel to front elevator was broken, and its mate bent.

"After striking the ground the first time, the machine bounded to a height approximately ten feet, and gradually rising to about thirty feet until, within about seventy five yards of the camp of the Eleventh Infantry, it made a sharp turn to the left banked up the turning wing, and made an abrupt dive to the ground. Lieutenant Kelly was thrown clear of the machine to a distance of about twenty feet.

"From all of the preceding facts the Board is of the unanimous opinion that the accident was due to the efforts of Lieutenant Kelly to avoid endangering the occupants of the Eleventh Infantry camp in which endeavor it became necessary for him to make a sharp left turn . . . which put more strain on the controls than the crippled machine could stand."

There were two fatal accidents in 1912, both attributed to poor pilot technique. The first accident occurred at College Park, Maryland and resulted from an abrupt pullout from a dive begun at 150 feet.

"The machine arose from the ground, made a circle of the field, and then flew south a distance of nearly one-half mile, made a turn over toward the trees and flew north at a height of about 150 feet. The machine was then pointed down at an angle of about 45 degrees, with power on, and glided down in this position to a height of about 30 or 35 feet from the ground. The pilot was then seen to work at his levers and the machine came up to the horizontal position when it seemed to quiver, and the wings appeared as if they were raised up, the ends being from two to three feet higher than the center section. It seemed to pause for a moment and then dove head-first into the ground. The engine was heard to run until the machine struck; then it was enveloped in a cloud of dust.

"From all testimony of eye-witnesses and a careful examination of the machine the board is of the opinion that the accident was due to the fact that the operator endeavored to bring the machine upward too suddenly, thus throwing a greater strain upon the front spars than they were able to withstand. The spars broke and the wings collapsed, bending outward and backward. The machine being relieved of the support of these outer planes, was precipitated to the ground.

"Probable Cause of the Accident: Error in judgment on part of pilot in gliding with power on and pulling machine up too suddenly."

The other fatal accident in 1912 occured when a pilot failed to level off properly and flew into the ground.

"Immediately after the accident the board proceeded to examine the wrecked machine and upon this examination found that the control wires were all intact. From the testimony of eye-witnesses, the board is of the opinion that the accident was caused by the aviator misjudging his height from the ground and his failure to bring the machine out of the glide in sufficient time to clear the ground."

This was a training plane in 1912. Can anyone identify the crew?

The first accident attributed to weather took place at San Diego, California on April 22, 1913. The following is a word-for-word account of the findings of the accident investigating board:

"Lieutenant Brereton left the hangars about 10:30 a.m. April 8, 1913, piloting the flying boat, No. 15, with Lieutenant Chandler as passenger who accompanied him for the purpose of learning the controls of this machine.

"At time of departure, the wind was blowing fairly strongly and somewhat unsteadily, and so-called "puffs" were particularly bad in the vicinity of Point Loma. The bay near the place of the accident is subject at times to treacherous gusts from the ravines on Point Loma which apparently converge there, making even sailing as well as flying difficult in that particular part.

"Flying into the wind Lieutenant Brereton attempted a right turn to start returning. When the turn was partially completed, a sudden gust of wind struck the machine, augmenting the amount of its bank to such a degree that despite every effort on part of the pilot to regain control, that it slid inward and downward falling about 100 feet into 30 feet of water. Apparently the nose and right wing struck simultaneously. The forward portion of the boat was splintered and separated from the rear but the planes held up the wreckage. Lieutenant Brereton was thrown out and escaped with little injury, but Lieutenant Chandler, sitting on the right, was pinned beneath the wreckage and drowned before help arrived. Each man wore helmet and "non-sinkable" coats, and Lieutenant Brereton probably owes his escape from serious injury in part at least to his helmet as both received serious blows on the head.

"The machine was almost completely wrecked. The engine was not damaged to any extent, and other saved parts were: one aileron, the stabilizer, and the rear section of the boat.

"The board is of the opinion that the accident was due to bad atmospheric conditions, aggravated by the natural sluggishness of the flying boat in answering its controls. It considers no person responsible for the accident.

"The two senior members of the board are of the opinion that had the accident occurred to a standard hydro-aeroplane, both pilot and passenger might have been thrown clear of the wreckage and escaped serious injury."

The first known accident involving a violation took place on May 10, 1913 at San Diego. The pilot violated his commanding officer's instructions to communicate personally with the commander in case the pilot landed before reaching his destination.

The pilot took off about 0520 on a flight from San Diego to Ascot Park near Los Angeles. At 0830 his home base received a telephone call telling that he had crashed and been killed. The accident board reported:

"The pilot had landed on a small knoll, the area of the top of which was such that it gave him about a run of 300 feet before he came to the slope which was about 20 degrees. At the bottom of the slope is a ridge or embankment. Beyond the ridge is the small valley or ravine which is covered with trees. On the opposite side is another equally steep slope to the top of another small hill, beyond which is a flat open valley of about four or five square miles in area. The high barley so retarded the speed of the machine that it did not arise before reaching the descending slope.

"It ran down this slope until it reached the ridge, and striking this undoubtedly bounded into the air. About fifty feet beyond the ridge is a tree

or sapling. The machine struck the tree about five feet from the ground at the left end of the engine section. The force of the blow tore away the entire left side of the machine.

"From the position of the radiator, it had evidently fallen on the pilot's head and due to the weight of the engine behind, had crushed it into the ground. The machine apparently never left the ground until it reached the small ridge above-mentioned and then only for a distance of about fifty feet. The knoll was of such a small area and surrounded by such obstacles that it would have been impossible for any machine to have arisen from it."

One interesting report concerned an accident on November 15, 1913, in which the pilot was thrown from the plane while it was flying straight and level. The pilot took off on a local flight near Manila and was cruising along at 500 feet when

he was suddenly thrown from the cockpit. The report reads:

"The cause of the fall will probably never be definitely known, as it seems that he got a good start and was progressing nicely at that altitude when suddenly the machine was seen to wabble and tilt forward and the aviator was seen to fall clear of the machine, striking the water with terrific velocity.

"Probable Cause of Accident: Stalling."

Engine failure caused its share of early accidents too. Witness the following report of an accident which occurred November 25, 1913 at San Diego.

After a short flight around the southern part of the island, the machine was noticed apparently returning to the field with the engine missing badly. While still about one mile from the hangars, the machine was brought into a normal gliding angle and the engine apparently throttled down, though still missing. It was the opinion of witnesses at this time that it was the intention of the pilot to make a landing, and not attempt to make the air field with

the missing engine. At the beginning of this glide the machine was probably 200 feet from the ground. The glide continued normal until about 75 feet from the ground, when the angle of glide suddenly steepened into a head-long plunge into the ground. At the moment of striking the ground the machine was about vertical.

"Probable Cause of Accident: Stalling due to remaining too long in air with missing engine and starting glide."

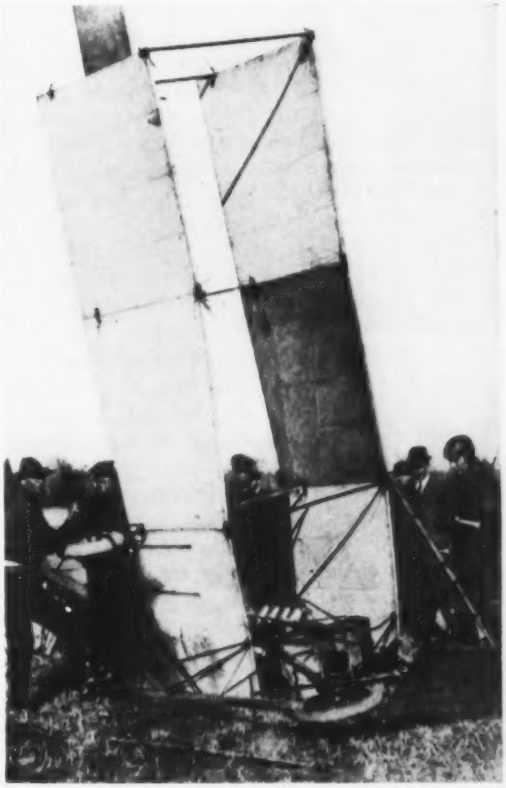
The early pilots had no one to teach them the rule every cadet learns early in his training—not to stretch a glide.

How to cope with stalls and spins also was one of the hardest lessons early aviators had to learn. Another early accident which occured at Texas City, Texas on July 8, 1913 was the result of their inability to cope with this problem.

"The pilot left the aviation field at 6:21 a.m. . . . for the purpose of practicing accurate landings without power, one of the tests for qualification as a military aviator. The air conditions were quite good at the time he left the field, although there was a slight puffy wind blowing from the north.

"From the testimony it appears that the aeroplane was flying between 600 and 1200 feet when it assumed a very dangerous angle, with the left wing at least 45 degrees lower than the right; that the aviator evidently attempted to straighten out the machine by turning to the left and pointing the nose down; that the machine then took a very steep angle downward which gradually became a perpendicular drop, and that between 200 and 300 feet from the ground the plane began to turn upside down at which time the wings collapsed.

"Probable Cause of Accident: Stalling and subsequent incorrect use of rudder by pilot. The collapse of the wings is a common result in accidents of this sort and does not necessarily indicate any structural weakness in the machine, but a great increase in pressure due to velocity of fall."



Lightning strikes

THE vast expansion of bad-weather flying in Britain during the war resulted in frequent cases of planes in flight being struck by lightning. Since the end of the war the British have made an extensive study of lightning and its effect on aircraft in flight in order to provide pilots and engineers with a better understanding of the problem.

Every Air Force pilot is familiar with the fact that lightning is most frequently associated with cumulo nimbus clouds. Laboratory tests have disclosed that electrical separation occurs in clouds when a water drop breaks up in the air, the water and the air assuming positive and negative polarities respectively. Two theories regarding the polarity of various areas of a cumulo nimbus cloud were discussed in a recent British report.

The first theory holds that positively charged drops remain in the lower cloud region while the negatively charged air rises. The second theory, which was based on experimental results observed during thunderstorms, maintains that the positive charge is at a greater height than the negative charge. Ascending air currents distort the electric field and separate the charges leading to conditions of instability in which the potential gradient may reach 10,000 volts per meter.

What this means to the pilot is simply that when he flies into such a cloud condition his aircraft frequently forms a conducting body between two electrical charges of opposite polarity. The plane may fly into the path of a previously initiated lightning strike or the plane itself may sufficiently disturb the stability of the electrical field to cause a lightning discharge. The number of thunderstorms in progress at any moment, throughout the world, has been estimated by the British meteorologist, Brooks, as about 1800.

The survey conducted by the Royal Aircraft Establishment disclosed five aircraft crashes caused by lightning. Three accidents were thought to have resulted from the pilots' being blinded by the lightning flash and subsequently losing control. One plane, a Hudson, was set on fire in the air by a lightning strike. The other accident involved a tow glider. Lightning struck the tow plane, passed through the tow line disentegrating it and damaged the tail fin of the glider so severely the pilot could not control it. The glider crashed, but the tow plane landed safely. One hundred and seventy-five other lightning strikes were reported where the planes were able to effect a safe landing after the incident.

Practically all instances of lightning strikes on aircraft in flight occurred when the plane was flying through precipitation of some form, either rain, hail, sleet or snow.

In 35 per cent of the incidents reported either a loss or gain of altitude resulted after the lightning strike. In many cases this was caused by an involuntary movement of the control column by the pilot and in other cases was probably due to the temporary blinding of the pilot. Two instances where the controls themselves were affected by the lightning were reported.

One pilot's statement said, "The controls seemed to lock momentarily, and along with inability to see the instruments, control was lost. The aircraft went into a steep spiral dive to the left in which 4000 feet was lost."

Another pilot reported, "The aircraft was thrown into a very steep turn with a violent jerk of the controls. The controls did not lock but the machine was temporarily out of control."

In 45 reported incidents the airframe was damaged. The damage was generally confined to the points of entry or exit of the lightning stroke, that is the wingtips, tail or the under surface of the fuselage in the vicinity of the trailing antenna.

When flying at night in an area where a lightning strike is possible pilots should fly with all lights turned up bright and keep their eyes inside the cockpit.

The possibility that you will be shocked or burned by a lightning strike on your plane is very remote. The only cases of lightning strike injury to British personnel reported by the survey were minor shocks and burns to radio personnel. These instances usually occurred when the operator was winding in or letting out the trailing antennae. U. S. Air Force aircraft are of metal construction and properly bonded to form a cage along which a lightning strike will pass.

get an ATC clearance

IT IS A serious situation loaded with danger, when a military pilot, having filed an IFR flight plan and obtained Flight Service approval, proceeds under instrument conditions without obtaining an Air Traffic clearance. Similarity between Air Traffic Control phraseologies and those used by Flight Service personnel and a misunderstanding among pilots of the relative responsibilities of the two agencies are believed to be contributing factors in such violations.

In brief, Flight Service approval of an instrument flight does not clear the military aircraft even if someone in an airways station or control tower uses the phraseology "Flight Service Clears . . ." This phraseology is not authorized by Flight Service Regulations.

This is clearance procedure for an IFR flight plan:

For a flight subject to instrument flight rules, the pilot and aircraft must be properly rated and equipped for the flight by instruments. An Air Force pilot not possessing authority to approve his own Form 23 must obtain approval from an established military operations office or from Flight Service before attempting a flight either on IFR or VFR. An Air Force pilot possessing authority to approve his own Form 23 must advise an established military operations or Flight Service before attempting a flight on IFR or VFR.

If the flight is to be conducted on IFR, *both* the pilot with authority to approve his own flight plan and the pilot not possessing such authority must, prior to entering or crossing a control zone or area, submit a complete flight plan and receive an Air Traffic Control clearance. The Instrument Flight Plan may be submitted to Air Traffic Control by an established military operations or by Flight Service, or by the pilot personally contacting the Air Route Traffic Control, Air Traffic Control Tower or Airways Communication System, either in person or by telephone. It is the pilot's responsibility to determine whether or not Air Traffic Control clearance has been granted for the flight contemplated.

Approval of an IFR flight by a military operations or by Flight Service must not be construed to mean that clearance by Air Traffic Control has been granted. The pilot should assure that approval has been obtained from military operations or Flight Service and that Air Traffic Control has cleared him before undertaking flight on instruments.

Every effort should be made to eliminate any misunderstanding held by military pilots with respect to the difference between Flight Service or his own "Green Card" approval and a clearance issued by Air Traffic Control. Failure to comply with air traffic regulations endangers other aircraft, snarls traffic and makes the violator subject to punishment.

TAKE NOTHING FOR GRANTED

By CAPT. HENRY W. HOFFMAN, Westover AFB, Massachusetts

For a long time I've searched for a good slogan for pilots anxious to die of old age. I found it finally by recalling one of my own astounding exploits.

One fine February night in 1944, an RB-24 was winging its way westward from Tucson through the silvery moonlight. Within it a crew representing the finest flower of young American manhood expertly manipulated the myriad instruments and controls that should have caused the machine to speed directly to its objective at Muroc Dry Lake.

My crew was on a night celestial round-robin and my navigator was brand, shiny new on his third or fourth flight since graduation. The rest of us were much more experienced—say fifty or a hundred hours more so. But I wasn't worried about the navigation. The night was as clear as a bell, the moon was shining, the "bird dog" (radio compass) was working, the bombardier was doing DR while the navigator worked his octant and, to clinch it, we had an instructor navigator along to supervise. This, I thought, was one time I could relax and enjoy the ride.

And I did, too. With the instructor in the cockpit rendering his standard travelogue from the sectionals as we passed the several towns and lights, the flight went quite pleasantly. As we passed Blythe, he noted that we were somewhat left of course. My octant mechanic in the nose, rising to the challenge, ordered "fifteen degrees to the right." He followed it in a few minutes with another fifteen degrees to the right. Pretty soon the travelogue gave out. We crossed one last, unidentified light line and plunged into the void.

The instructor wasn't sure from his map whether we were still left of course as when we passed Blythe, or if we were to the right because of too large corrections. So, I asked the navigator for a fix. After an extended period of holding the tub straight and level while he took horoscope and sextant in hand, he reported no dice. Then we fired up the bird-dog but the scent was lost in the hills; all we got was static. Next I applied to the bombardier for a reading from his DR log. We drew a blank here, and I do mean a blank. We still hadn't disturbed the radio operator. Under the circumstances it took only a few minutes for him to crank up his machine and report that, while he had heard about DF stations, he didn't have the details with him and besides, reception was poor.

Eventually we came to a narrow, inhabited valley running roughly north and south. We looked it over, but there didn't seem to be any fields around and the map indicated that we could not be far from the coast where there were beaucoup fields, lights, friends, houses, people, etc. All we had to do was cross Mt. Whitney and its cousins in the Sierras. They were all lined up to the west, between us and the sea. The chart said they didn't go much above 15,000 feet, but from where I was sitting it looked as though a zero had been left off the figure given on the map. We chose to believe the map, and pointed the nose west. At 18,000 feet it appeared that we were splitting the difference between death by anoxia and death by mountain banging, so we leveled off and started over the mountains.

Pretty soon we picked up the Bakersfield range on the radio compass, the radio operator reported good reception, the navigator got a fix, the instructor pulled out a fresh map, and the rest of the crew resumed their reveries. I wish that I could also report that the bombardier was able to get his DR board in operation, but the truth came out only last year when he finally confessed that, at the time of the flight, he didn't even know what DR meant.

I guess I am very lucky to be able to say that we profited from the experience and successfully completed our training and combat tour.

As a consequence of that midnight view of Mt. Whitney I took the pledge and since then have paid attention to the navigation. In time, I came to realize that a navigator's skill is not the only thing one cannot take for granted, but that in everything connected with flying there is no supposition that can substitute for accurate knowledge.

So, if a pilot needs a slogan, I'd suggest "Take *nothing* for granted!"

WELL DONE

to

1st Lt. PAUL P. TAYLOR and his RB-29 CREW

BARKSDALE AFB, LOUISIANA

A B-29 CREW faced with the likelihood of losing all four engines while cruising 10 miles west of the Golden Gate wouldn't exactly consider themselves fortunate. But that is the situation 1st Lt. Paul P. Taylor and his crew of the 324th Strategic Reconnaissance Squadron had to face.

They had taken off from their home base at Barksdale AFB, Louisiana, to fly a training mission to Southern California, up the coast to Washington and then inland to Spokane. The pre-flight was made in the usual manner with no discrepancies noted. After a normal takeoff, the flight proceeded without any unusual conditions for approximately eight and one-half hours. At this time the airplane was cruising at 6,500 feet approximately 10 miles off the Golden Gate. Engines were purring at 1800 rpm. All at once it sounded as if someone had cut all four engines.

A quick inspection indicated the master prop indicator dropping sharply; next, the master prop motor switch was noted in the OFF position. The switch was immediately moved to the ON position. At this time the master indicator read approximately 700 rpm and the individual tachometers read approximately 1000 rpm.

The master motor had attained a speed of approximately 1700 rpm when the switch kicked to the OFF position again. It was moved back ON again and the props were brought back up to approximately 1700 rpm and the individual prop control switches moved to the FIXED position. (This procedure would ordinarily hold the props in a fixed pitch position.) Again, the master motor switch kicked OFF and the props began to lose rpm as before. At this time the switch was again placed in the ON position and the individual props put back into the automatic position with the master motor switch being held in position by the crew chief, T/Sgt. William S. Burns, until a landing could be made.

The pilot, 1st Lt. Paul P. Taylor notified Hamilton Airways of the emergency and that he would land at Hamilton, the nearest Air Force base. The control tower was contacted for emergency landing instructions. Crash crews were requested to stand by.

Altitude was held at 6,000 feet until over the base and then a let-down with low power was performed entering the downwind leg at 3,000 feet, using almost no power for the remainder of the downwind and base legs. The pilot elected not to change prop rpm for landing and made a power-off final approach. The landing was made without further incident.

After the landing, the pressure was released on the master motor switch and it immediately kicked to the OFF position again. After they had taxied to the parking area, an attempt was made to run up the engines, but the rpm would not increase beyond 1200 rpm.

Crew members shared the opinion that all four props would have feathered if the master motor switch had been allowed to remain in the OFF position. And with the master motor switch held in the ON position, it is doubtful that the motor would have lasted five more minutes. The master motor was removed and a UR submitted. Lieutenant Taylor and his crew have been commended for their alertness in saving their B-29.

FRIEND ON THE HIGH STILTS

An F-80 pilot rolled out of a turn onto the final approach after calling the tower "Air Force 619 turning final, gear down in the green." The pilot had the plane lined up nicely at 200 feet about 300 yards short of the runway all set for a landing that would have resulted in a major accident.

There was no accident because the pilot's friend on the high stilts, an alert tower operator, noticed that the nose gear of the F-80 was actually hanging down at an angle of about 45 degrees instead of the full down position.

"Air Force 619, pull up, pull up, your gear is not down."

The pilot applied power and went around. Using emergency procedures he was able to get the nose wheel down and locked and make a normal landing. Many instances of this nature occur daily in Air Force operations in which alert men and women in control towers prevent inadvertent wheels-up landings and other mishaps.

But no matter how much AACS does through its tower operators to help prevent accidents, they can't eliminate the problem so long as pilots fail to do their part. Preventing an accident must continue to be the pilot's responsibility.

A B-26 made a normal overhead pattern, the pilot lowering the gear on the downwind leg. The warning horn did not sound and the safe lights indicated that the gear was down. However, the pilot did not check his nose gear visually and failed to note that his nose gear did not extend.

The pilot called the tower on the base leg reporting gear down and locked and was cleared to land. However, he overshot and elected to go around. The pilot raised his gear and made another complete overhead approach and pattern. Again he lowered the gear and the safe lights indicated the gear down and locked. The horn did not blow. A second time the pilot called the tower from his base leg and was cleared to land. The nose gear was still not down and the plane wound up on its nose.

Had the tower operator noticed that the nose gear was not down he might have prevented the accident. However, the fact that he did not see it in no way absolves the pilot of any blame. This accident was pilot error since the pilot failed to check his nose gear visually. Pilots must never lose sight of the fact that they and they alone are responsible for checking their landing gear. In order for the pilot's friend on the high stilts to help him the pilot must request and use this help intelligently. An F-47 pilot failed to do that recently.

A formation of six F-47's peeled off for landing at an air base in the central United States. The No. 3 man in the second flight noticed his gear warning light on and found that he had a hydraulic leak. He called the tower operator and advised him of the situation. One plane was low on fuel. The tower cleared that pilot for a landing and sent the remainder of the planes up to 3000 feet.

The pilot having trouble called the tower for a visual check of the gear. What he didn't tell the tower operator was that he was then three miles from the field. Assuming logically that no pilot would request a gear check when he was so far

away, the tower operator looked over another F-47 plane which was over the field and replied that the gear appeared to be extended in the normal position. The pilot having trouble proceeded to make a very long approach and land. The tower operator noticed that the plane's gear was not down while the jug was on final but was unable to warn the pilot because of radio interference.

Because many aircraft in current use have little or no rearward visibility, the pilot of such aircraft holding for clearance in takeoff position on the end of the runway must rely entirely upon the tower controller to ascertain that the approach is clear of landing aircraft. In this situation a dangerous condition can be created by a momentary communications failure, distraction of the tower controller, or other unusual condition.

A C-54 with 40 passengers aboard had completed engine runup and was cleared by the tower to line up and hold on the takeoff runway until an L-5 which was taking off cleared. About the time the L-5 became airborne, an F-47 flying locally experienced propeller control failure and the pilot notified the tower that he was unable to maintain altitude and would make an emergency landing on the runway. The F-47 and the C-54 were on different frequency channels, and a relay in the control tower was inoperative, making it impossible for the controller to broadcast to both aircraft simultaneously; consequently the C-54 pilot was unaware of the emergency. When the L-5 had cleared, the transport pilot began to advance the throttles while the copilot called for takeoff clearance. The tower's reply was garbled by interference.

By this time the F-47 pilot, letting down VFR through scattered clouds, had arrived over the end of the runway at 1,000 feet. He immediately advised the controller to "get that C-54 off the runway," and began a tactical turn for landing. Meanwhile, the C-54 had started to roll. The copilot requested that the tower repeat takeoff clearance. Again the reply was garbled. The copilot, who was actually an instructor, advised the pilot to stop the takeoff until clearance could be obtained; power was reduced and takeoff clearance again requested. This time the tower directed an immediate takeoff, and the pilot advanced the throttles, still unaware of the approaching F-47. Meanwhile, the fighter pilot had completed his turn onto the final approach. Discovering that the runway was still blocked, he asked the tower to hold the C-54 so he could land over it.

The tower controller fired red flares in front of the transport, but by this time it had attained flying speed. The pilot later testified that the aircraft could not have been brought to a stop in the remaining runway and overrun. Therefore, takeoff was continued.

As the C-54 took off the F-47 pilot added power in an attempt to go around. The engine would not exceed 1,800 rpm, and he was unable to gain speed or altitude. He began a shallow left turn passing a few feet from the C-54 as it became airborne and attempted to line up with another runway for landing. However, the F-47, with insufficient altitude to complete the turn, crashed in a concrete drainage ditch and was completely demolished. The pilot luckily escaped with minor injuries.

Since an airplane holding on the end of the active runway can cause a dangerous situation to develop in only seconds time, a very grave responsibility rests with the tower operator to give his full attention to the situation and maintain strict control over all aircraft which might be involved in taxiing, takeoff and landing at that moment. The shorter time a plane is held on the end of the active runway before taking off, the less likelihood there is of a dangerous situation developing.

Although an alert tower operator can and often does prevent accidents, this in no way relieves any pilot of his responsibility for making proper landing and takeoff checks and watching where he is going at all times when taxiing. Nor do tower instructions in any way relieve the pilot of the responsibility for using sound judgment on whether to taxi, take off, land or go around.

The friend on the high stilts is there to advise and caution and assist in every way he can, but the safe operation of an aircraft is still the responsibility of the aircraft commander.

SAVE GAS AND GAIN PROFICIENCY

IF EVERY pilot complies strictly with the proper techniques of economical operating procedures, the Air Force will save money and lives. Because of budget restrictions and the corresponding decrease in available flying hours, the Air Force must achieve the maximum training for the least dollar cost.

The most fertile source for such savings is MIT and administrative flying where speed is not normally paramount to the accomplishment of the mission. Recent checks by Operations, Headquarters USAF, reveal that many pilots are operating aircraft at continuous fixed power settings without regard to weights, time of flight or altitude. Considerable dollar savings can be effected by adoption of cruise control settings, which for most MIT flights means power settings lower than those habitually used.

The Office of Flying Safety of Air Proving Ground Command points out other advantages which will be realized in complying with proper techniques of economical operating procedures:

Training in cruise control is becoming increasingly important. Lengthy missions are being flown in aircraft today that were not believed possible before the development of our present-day cruise control systems.

Additional flying time for holding purposes will be available to you upon arrival at your destination should traffic delays exist. USAF Aircraft Accident Review publishes many "out-of-gas" accidents caused by pilots who "firewall it" en route to their destination, only to discover that when they need a few minutes more fuel, it isn't there.

A typical flight, of a thousand miles in a B-17 will show the approximate amount of fuel that may be saved.

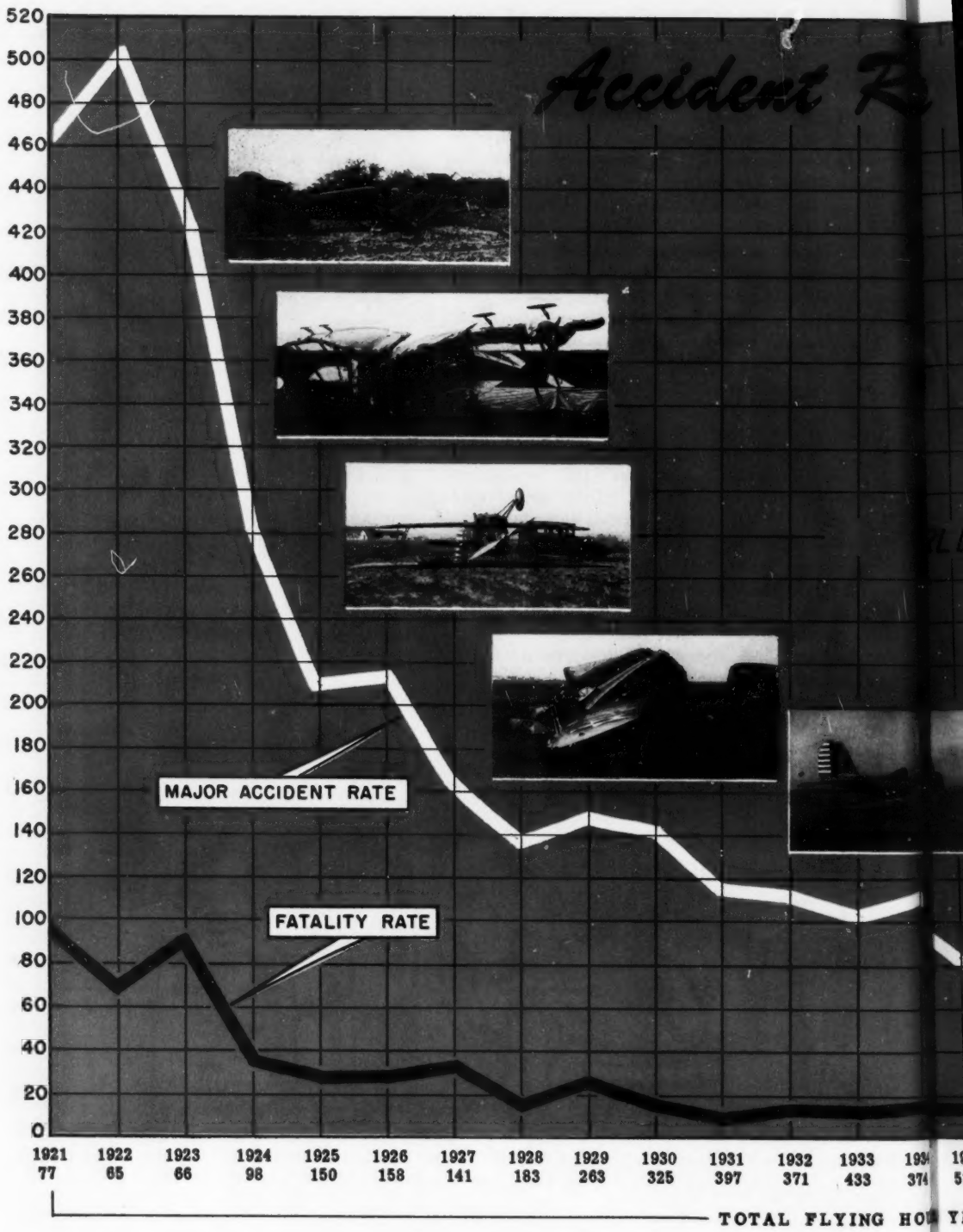
RPM	M.P.	Gal. Hr.	Airspeed	Flight Time	Gallons Consumed
2100	31	255	200	5:00	1275
2000	28	190	180	5:33	1055

Net results—1. 220 gallons 100 octane at $0.22 = $48.40

2. An additional hour and one half of holding if weather or traffic necessitates (at 28" HG and 1700 rpm).
3. 33-minutes extra flying time for the Form 1 and the Form 5.
4. Probably lengthen life of engines.

Multiply the facts and figures from this one flight by the thousands of administrative and proficiency flights that are flown each year and the figure would be astounding.

"LET'S MAKE IT A SAFE AND THRIFTY '50".


Accident R
MAJOR ACCIDENT RATE
FATALITY RATE
520
500
480
460
440
420
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280
260
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220
200
180
160
140
120
100
80
60
40
20
0
1921 77
1922 65
1923 66
1924 98
1925 150
1926 158
1927 141
1928 183
1929 263
1930 325
1931 397
1932 371
1933 433
TOTAL FLYING HO

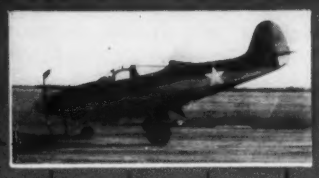
R 1921-1949

The major accident rate for 1949 is the lowest rate in the history of the Air Force. The chart shows the rate since 1921, and for comparison in recent years, it will be noted that accidents have decreased consistently since 1946.

The record reflects the efforts of all commands and units in the Air Force and should stimulate each officer and airman to do his part to further reduce the accident rate.

RATES: ACCIDENTS & FATALITIES PER 100,000 FLYING HOURS

LD WIDE USAF — CONTINENTAL U.S. ONLY — WORLD WIDE USAF



193	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
374	519	520	599	729	938	2,388	14,246	32,065	35,503	15,052	3,625	3,424	4,160	4,367

HOURS YEAR - IN THOUSANDS

Fifth Phase Testing

THERE was a time when, if you wanted to know how an airplane flew on instruments, you would go find out for yourself or ask someone who had flown it during actual instrument weather. Chances are that someone would be wrong with the usual resultant rise in the accident rate proving it. Consequently, something is being done about the situation.

AMC's All Weather Flying Division now has the project of determining the suitability of all aircraft scheduled for production to fly under ALL instrument conditions.

The tests, called Fifth Phase, are an addition to AMC's usual preliminary performance tests of any new plane which cover four phases, including the initial "safe for flight" tests, ground tests, etc. The Fifth Phase consists of flights made by All Weather to gather complete information and data on handling of the aircraft from takeoff to landing under actual or simulated instrument conditions.

The aircraft is evaluated for instrument flight in all conditions of turbulence, icing and low visibility landings to determine the limitations as well as the best operating techniques. Functional tests of all instrument flight equipment in the plane are also made. Sometimes it is necessary to recommend changes which will increase efficiency in the plane under adverse weather conditions.

In the tests on instrumentation, sufficiency, realiability, arrangement and lighting are assessed. The plane is flown from takeoff to landing on instruments. On takeoff the directional characteristics of instrument control, and airspeeds for various weights and the initial rates of climb are closely studied and recorded. During normal flight the ease of control while on instruments at various speeds, for standard rate and steep turns, stability in all three axes, and emergency procedures are tested.

The radio navigation equipment is assessed for simplicity and ease of operation, realiability and accuracy of reception under bad atmospheric conditions. Next, stability and control are tested in turbulence. Finally, the characteristics of control when flying instrument landing systems and the visibility from the cockpit in heavy rain or snow are carefully recorded.

After the tests are made, a comprehensive section on "Instrument Flight Technique" is prepared for insertion in the Pilots' Operating Instructions for the particular plane. This section embraces:

1. Pre-flight instrument check.
2. Instrument takeoff technique.
3. Techniques for flight in turbulence or through thunderstorms, including best airspeed range.
4. Pilot technique during icing conditions.
5. Power settings and airspeeds best suited for holding procedures.
6. Initial and final approach speeds including power and flaps settings for various weights.
7. Techniques most suited for flying low approach systems including ILS and GCA.

Each plane is tested by a team of three well-qualified pilots, one of whom is project officer. These pilots each run all the tests and then their findings are correlated and if any large discrepancies are found the matter is thrashed out until all three agree.

With the advent of the Fifth Phase Tests there no longer need be any guesswork about instrument flying in new airplanes on the part of pilots to whom the planes are assigned.

Hold 'er Newt!

She's headed for the barn

A balky landing gear gave this T-7 pilot the tough job of landing on one wheel. After takeoff he noticed the airspeed was too low for the power settings and angle of climb being used. The right gear had not retracted, but the left gear was up far enough to be out of sight. Normal and emergency procedures were attempted to raise the right gear or lower the left gear, without success.

The pilot made a low pass over the field to have the tower operator check the gear position. Informed that the left gear was only partially extended, the pilot tried sharp pullouts to force the left gear all the way down, but the gear would not lock down. Notified of an emergency landing, the tower instructed the pilot where to land on the runway to utilize emergency equipment to the best advantage. The plane was landed skillfully on the right wheel, rolled for about 200 yards (photo above) when the left wingtip scraped the runway. At the same time, the left prop made contact (photo upper right) bending the tips. The right gear then collapsed into the wheel well and the plane skidded to a stop on its engine nacelles. Crew and passengers, none injured, quickly abandoned the plane as crash crews stood by. Materiel failure (master link pin) was the cause of the accident.

Photo by Basham

CKPITS

THE COOKBOOK advises inserting a meat thermometer into the center of a baking ham to determine when it is properly done. When the meat next to the bone has reached 160 degrees the ham is ready to serve.

Leave the canopy closed on a tightly-sealed, pressurized airplane parked on the ramp on a warm day and you can get temperatures as high as the inside of that ham. As a matter of fact, it is no trouble at all to place a thermometer against metal inside a closed canopy and read a temperature of 160 degrees F. when the outside air temperature is just a sweltering 90 degrees. Now the cockpit of an airplane isn't suitable for cooking, but such high temperatures can be more than uncomfortable to the pilot or crew working inside while the plane is on the ground.

What used to be minor inconveniences—sweating from the heat or freezing from the cold in an airplane—have now become problems of safe flight. When a pilot sweats so much that his gloves become soggy and the control stick slips from his hand—when a mechanic can't see to turn a screw because perspiration in his eyes blinds him—it is no longer crew comfort but survival.

The temperature outlook is not all crisp and well-done, however. There are things that can be done now to cool parked planes, and there are tests and research being made for the future to keep cockpit and cabin temperatures within the limits demanded for crew efficiency.

Because a military airplane has to be designed to fly the greatest possible distance at high speeds and carry the necessary weapons, there is neither room nor weight carrying capacity to install, as a part of the airplane, theatre-comfortable air conditioners that will work on the ground. The systems that are presently installed do regulate the temperatures inside pressurized cabins when the planes are in flight. Of course there have been cases when such a system has failed in fighters doing low-altitude, ground-support work in hot weather and the pilots have literally steamed in their coveralls under the closed canopies. Modifications have been made to eliminate the cause of such failures of the cooling system.

On the ground, fighter pilots do not have quite the same problem as crews of the new bombers. Fighter pilots usually can leave their canopies open until they are in takeoff position, but the various crew compartments in bombers cannot be cooled by opening doors. An outside source of cold air is required. At the present time the old Type A-1 Cooler (see T.O. 19-60-15) is being used by some units to reduce temperatures in parked airplanes. Air is piped through flexible hoses from the cooler to the airplane. The latest USAF planes have ducts installed to receive the output from cooling units. Orders have been placed for more of these portable units for use of B-36 and B-45 groups. Meanwhile, repairable A-1 coolers are on master repair schedules at various Air Materiel Area depots.

Engineers at AMC are improving on the type A-1 which has a cooling capacity equal to a refrigerator capable of making a maximum of three tons of ice per day. What is needed, they feel, is a portable cooler, light and easily transportable with a capacity equivalent to the manufacture of at least seven tons of ice per day. Such a cooler is well along in development. The same unit, a year-round air conditioner, may also be wheeled out to heat airplanes before takeoff in winter.

Another project underway at AMC which will contribute to happier and safer crews is a portable shelter for fighter planes for hot or cold weather. It will be of a type easy and quick to erect, and even offer protection from mosquitoes.

If air conditioning can be built into flying togs—coveralls, helmets, gloves—that too will be done in an effort to eliminate the danger of air crews taking off in a sweat and then freezing at altitude. The most persuasive argument in favor of controlling cockpit temperatures is the possibility that a flier, after becoming drenched with sweat on the ground, will have to bail out in extremely low temperatures at high altitude. It is doubtful that he would survive the sudden shock of exposure.

MEDICAL SAFETY

DIET BY RULE OF THUMB

Books have been written on diet. Dietary habits have been studied for generations in many scientific laboratories and much knowledge is now readily available concerning the maintenance of health through balanced vitamin consumption.

The food that appears on military mess tables is the best that can be had for developing and maintaining fighting men. This careful balancing of the diet makes our own armed forces the most physically fit in the world.

For the pilot, a properly balanced diet assumes great significance. He requires mental and physical stability and well-being because flying uses up the reserve energy of the body tissues at a rapid rate. Therefore, the pilot should have a good understanding of diet in maintaining a high level of health.

The individual must be in command of his appetite and eat what he knows will constitute a balanced diet. If he neglects to do this he will expose himself to a variety of physical or mental malajustments, among them poor eyesight, hearing deficiencies, anemia, night-blindness, prolonged fatigue, neuritis, and frequent colds.

For medical care the flyer depends largely upon the professional guidance of his flight surgeon. Because today there is an acute shortage of medical personnel "keeping fit" become an individual's own responsibility.

Statistics over many years indicate that approximately 70 percent of aircraft accidents are due to errors on the part of the pilot. We have no way at present of determining just what percentage may result from an improper diet either as a main cause or as a contributing factor to the accident; but because nearly all vitamins play an important part in mental alertness, sense acuity, and muscular balance, it seems reasonable to assume that some of these pilot-error accidents are fundamentally caused by a deficiency in the diet.

Night-blindness is a prime example of this. It varies from mild states detectable only by instrumental means to disability sufficient to make the subject blind in a dim light and is caused by deficiency in vitamin "A." In the mildest forms the pilot may be unaware of the defect. Later he may have difficulty in finding a seat in a darkened hall or he may collide with another aircraft in formation night flying for no apparent reason.

It has been shown that the average American diet cannot always be trusted to provide a sufficient amount of mineral salts and that it is frequently lacking in vitamins. The mineral elements most often lacking are calcium, iron and phosphorus. Deficiencies in vitamins are particularly apparent in the low-cost diets. This is, as a rule, directly proportionate to the extent to which these diets are lacking in milk and green vegetables.

Sufficient minerals and vitamins can easily be provided if liberal allowance is made in the food budget for milk and green vegetables. Without milk the diet will almost surely be lacking in calcium. True, milk is deficient in iron, but this element can be secured from fruits and vegetables as well as from eggs and lean meats. In order to make sure of an adequate supply of minerals and vitamins, the diet should provide milk and liberal quantities of fruits, tomatoes and green vegetables, particularly vegetables of the leafy variety, such as lettuce, cauliflower and cabbage.

Food should be palatable else it will not be eaten. It should always be satisfying, and to this end attention should be given to its satiety value.

Man's dietary needs may be summarized as follows: In order to enjoy robust health and to avoid the results of nutritional failure, he should drink each day one quart of milk, eat one salad and two liberal helpings of the leafy portion of green vegetables. He should eat one helping of meat and perhaps two eggs. To this he may add anything else within reason which his appetite demands, including a liberal supply of butter, bread, fruits and the various vegetables. If he will do this, the state of his nutrition will not suffer.

AIR FORCE FOUR EIGHT FOUR

Capt. C. E. Thomson, Jr. USAF Institute of Technology

I'll tell you a tale of woe tonight
From this hospital bed where I lie,
And I hope it'll serve to set you right
On the manners of those in the sky.

I was barrelling through the clouds, you see,
And the weather was socked around
To where there was only sleet and snow
From the moon right down to the ground.

My wings were bending deep with ice
And my engines groaning strange
As I tried to call for a letdown nod
While nearing the Newark range.

It was cold up there, but gobs of sweat
Along my spine did pour
For the VHF was occupied
By Air Force Four Eight Four.

"This is Air Force four eight four," he called.
"Hello Newark, are you there;
I left Santone at . . . let me see . . .
Just when did I leave there.

"I'm cruising now nine-thousand five
And the time . . . the time, oh, yes.
It's about a minute past the hour
And my clock is right, I guess.

"Newark, I'm item fox tonight
And I'm bound for Bangor, Maine,
And when I pass by Mitchell
I'll call in once again.

"I'm flying airways, Newark
At first they put me at nine,
But the Flight Service bunch at Maxwell
They changed that plan of mine.

"So it's now nine-five like I told you
And for your information, it's socked;
Would you like a first-hand pilot report—
Your last transmission was blocked."

The sweat upon my brow ran fast
As number two quit cold
And I tried to feather the bustard
But she churned and turned and rolled.

My deicer boots were shot to hell
And the wings packed more and more
As I tried in vain to break the spell
Of Air Force four eight four.

"This is Air Force four eight four," he called.
"Newark, it's me still here.
I think that you should be advised
That to the north it's clear.

"I'm breaking out now at nine-five
And the stars were good to see,
But Newark you might tell ATC
I'd like to come down to three . . .

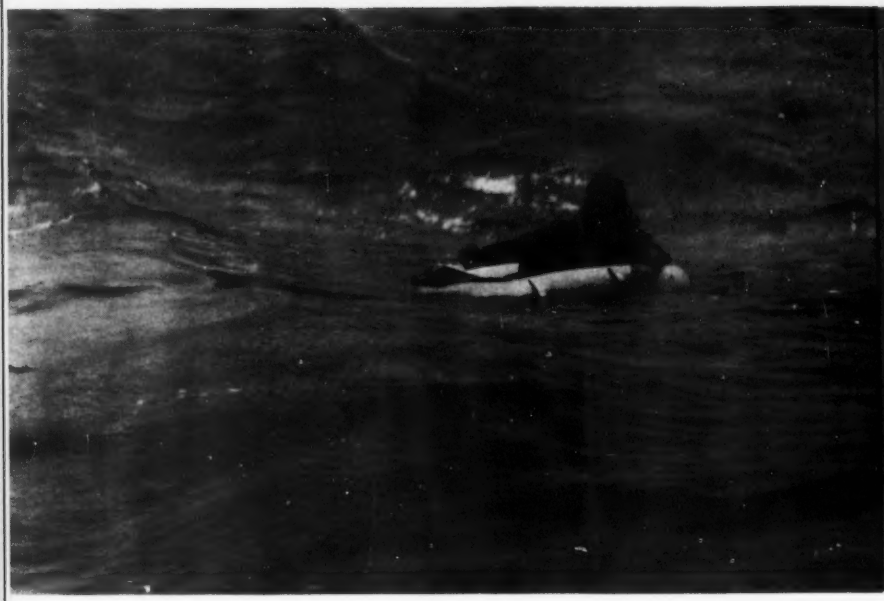
"I'm needing weather time, Newark,
And I can't draw that on top . . .
Let's see, now . . . fuel remaining
And all that sort of slop . . .

"I'll call you back in a minute,"
Said Air Force four eight four,
But by then I was really in it—
I had lost one engine more.

And the ice was the breed of Greenland,
The airspeed a thing of the past
And my altitude was a long lost friend
Failing and falling fast.

So I bailed the crew and on I flew
While they cleared the stricken plane.
I'll spare you the gory details—
A look at me will explain.

There's a chance I'll go to heaven,
A chance for that pearly door—
But I'd swap that chance for a crack at the pants
Of Air Force four eight four.



DINGHY DRILL

By
CAPT. DANIEL B. DOCKS
Andersen AFB, Guam

BATTLING heavy sea swells, rain squalls, and a biting wind, air crews of the 514th Weather Reconnaissance Squadron (VLR) from Andersen AFB, Guam, recently took advantage of the temporary suspension of operational B-29 flights to brush up on their emergency aircraft ditching procedures in the open sea off Guam's west coast. While their B-29's, specially equipped for weather reconnaissance, were receiving the latest in safety modifications, the crews were brought up to date in all phases of flying safety techniques through an intensive program, stressing ditching procedures in particular.

The 514th flies over most of the North-western Pacific away from established airways and far out to sea, and crews realize the possibility of an emergency ditching.

In planning the practice, it was decided that conditions should simulate as closely as possible those that might be encountered at the scene of a real emergency ditching. Previously employed locations in the shallow lagoon of Tumon Bay, sheltered from sea swell by a coral reef, were abandoned in favor of a deep-water location. Arrangements were made to have the crews taken out to sea aboard one of the emergency vessels of the 6251st Rescue Boat Unit based in Apra Harbor.

"D-Day" proved to be dark and squally when the air crews reached their destination about three miles off Spanish Rocks on the island's west coast. Plowing through the heavy seas, the boat bumped and slid through the crests and troughs, the waves breaking over the bow. The ditching location was given an atmosphere of grim reality by the leaden sky overhead and the sea swells whipped by a 25-knot wind.

Approaching the area selected for the drill, the boat slowed and maneuvered into a position that put the prevailing winds off the starboard bow and afforded some degree of shelter for the men who were to use the port side of the ship for entering the water. The engines continued to turn over slowly in order to maintain steerageway against the force of the wind. While the various types of emergency clothing to be worn were fitted, lookouts were posted on the bridge with carbine rifles, and shark repellant was dumped into the water to ward off sharks. The boat's crew inflated one of the several life rafts aboard and let it down over the fantail of the vessel into the water. The sea had roughened somewhat, but no signs of seasickness were apparent as the airmen struggled to keep upright on the tossing deck. They stripped to bathing trunks and donned the bulbous yellow rubber exposure suits they were to wear. Over the exposure suits went the familiar Mae Wests.

After a thorough final briefing on the equipment available and its proper use, given by Capt. Ray Shaffer, 514th Squadron Flying Safety Officer, the

men took their places at the port rail and each in turn leaped into the churning water with the intention of making his way to the raft trailing several yards astern of the rescue craft. Each man would then leave the raft and be towed aboard the boat by handline. While several of the men carried out these instructions with little trouble, the heavy sea running at the time was a considerable hindrance to others who had difficulty swimming to the raft.

After the drill was completed a critique was held. It was agreed that the emergency equipment performs all the functions for which it was designed. The Mae West will support a man with only one side inflated, and it is easier to swim to a raft with the life vest in this condition. In addition to making it easier to swim, inflating only one side of the vest enables a man in the water to turn his head about more easily to keep track of the raft's position.

The drill also pointed up the importance of having the life raft secured when it is tossed into the water. Rafts released in the water without a restraining line will very rapidly be carried out of reach by the wind and current, a point to be remembered by crews engaged in over-water flying.

Lt. Richard N. Houdesheldt, 514th Personal Equipment Officer, donned a standard parachute harness over his exposure suit and life vest and attached a one-man seat type dinghy for the purpose of demonstrating its operation in the event an over-water bailout was necessary. After explaining and demonstrating the various contents of the dinghy pack, Lieutenant Houdesheldt moved to the rail and slipped over the side of the boat, inflating both sides of his life vest as he did so.

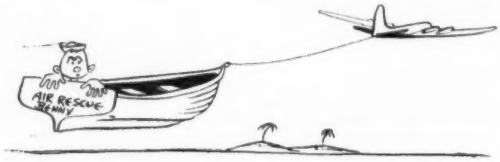
He quickly disengaged himself from the parachute harness and after working with the dinghy a few moments got it inflated and climbed abroad. He settled himself in the tiny raft and put out the canvas sea anchor to hold the raft heading into the wind. Although waves broke over the raft from time to time it did not upset. The rescue boat circled the raft as it drifted along with the wind.

The appearance of sharks and the increasingly rough seas influenced the decision to forego further operations that day.

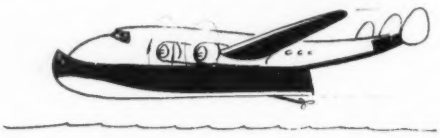
From the experience gained during these simulated emergency ditchings it was learned that getting from a ditched aircraft into the life rafts under adverse conditions will be the most difficult feat crews will have to accomplish after a water ditching. The importance of having the raft secured to the plane while the crew members climb aboard cannot be over emphasized.

It is realized that only a very short time may be available to a crew that has ditched before the plane goes down, however, the life rafts should still be attached to the plane before they are tossed overboard. The line provided for this purpose on all rafts has a breaking strength that will not permit the raft to be pulled under in the event the plane goes down before the rope can be untied or cut loose.

Long Range Intercept—The longest intercept by an Air Force plane known to date was recently accomplished when an SB-17 with an A-1 lifeboat took off from Hickam AFB and intercepted an R5D 540 miles east of Oahu. The SB-17, from Flight D, 4th Rescue Squadron, took off when the troubled R5D was still 1000 miles east of Hickam and, after intercepting the plane, escorted it to a safe landing at Barbers Point Naval Air Station. It must have made the 13 passengers aboard the R5D feel good to see the B-17 standing by in case ditching of the disabled plane became necessary. Congratulations to the 4th Rescue Squadron for a job well done.



Scale Model Ditchings—Ditching tests of a one-eight scale, dynamically similar model of the Constellation with Speedpak attached revealed that it should be ditched in a medium nose-high attitude with the landing flaps fully extended. NACA, who did the tests at their Langley laboratory, indicated that the airplane will probably make a smooth run and settle fairly deep near the end of the run. The Speedpak bottom will be damaged considerably. However, the bottom of the airplane fuselage will probably be damaged relatively little in reasonably smooth water because of the protection afforded by the Speedpak. The airplane will probably ditch better with the Speedpak attached than without it.



Pilot in Command—MATS leaves no doubt in the minds of its pilots as to who is in command of the plane. On all flights, the pilot in command of the aircraft is so designated by the phrase "In Command of Aircraft" on operations orders, posted crew schedule, or by other appropriate means.

◆ ◆ ◆

F-80 Boost-off Lateral Control—AMC is working on a project to improve lateral control of F-80's with boostoff. Some reduction in stick forces has been achieved, but the project is not yet complete.

Lightweight Flying Shoe—Those of you who deplore flying in the heavy winter type flying boot may be happy to know that the Air Force is working on a lightweight shoe adequate for intermediate temperatures and which will also be suitable for use on the ground by ground crews. The boot being tested at Air Proving Ground is a lightweight 12-inch, semi-blucher type with sealed insulation throughout the foot area.

Better Mae West—It is anticipated that a new Mae West life vest will be adopted soon. AMC is considering one submitted by a commercial manufacturer although some refinements are still to be desired.

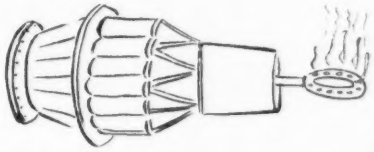
Oven, Food Warming, Electrically Heated, Type B-3—for warming canned rations is undergoing tests at APG. Six type B-3's, and six type B-4's for warming precooked frozen meals, have been shipped to Eglin for final test.

◆ ◆ ◆

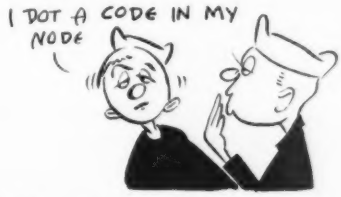
Time of Consciousness—The time of consciousness following oxygen mask removal at a given altitude is considerably longer than the time of consciousness following rapid decompression to the same altitude. Tests have shown that the time reserve is 28 percent to 49 percent longer in the mask removal.

IN CURRENT

J-47 Engines—Two new model numbers are being assigned to the J-47 type engine. The J-47-GE-19 engine will be the engine for the B-36 installation and the YJ24-GE-17 will be the engine designation for five prototype afterburner engines for installation in the F-86D's.



Suit, Flying, Air Conditioned—That's what the man said. An air-ventilated flying suit to provide comfort to flying personnel in temperature ranges from 140 degrees Fahrenheit to 20 degrees below zero is being tested.



Cold Cures—In veiw of recent widespread advertising of the new antihistaminic cold cures, from which many people have a distinct sleep-producing reaction varying with the individual at different times, it has been directed by Hq. CONAC that no one be allowed to be a member of the crew of an aircraft within a 24-hour period after taking any of these anti-histamine drugs.

◆ ◆ ◆

Gunnery Fouls—Recent fighter gunnery accidents caused by collisions with targets and the ground have made it advisable to establish strict rules to apply at the Air Force gunnery meet to be held in March at Las Vegas, Nevada. For example, a referee will judge pilots from the 800-foot foul line in ground gunnery competition. The first foul will result in a 10 per cent reduction in score and a warning. The second foul will result in disqualification from the event. Likewise, a minimum drop point of 2,000 feet for dive bombing has been established. A foul results in the loss of the score for the bombs dropped below minimum altitude.

Better Weather Forecasts—Improved weather information for pilots will result from a new 10,000-mile "express service" (XA) communications circuit to be opened by the Civil Aeronautics Administration this spring. The CAA now operates about 75,000 miles of domestic teletype communications for collecting and disseminating weather information and forecasts. The present circuits are limited to specific areas, however, and long-distance information must pass through a number of relay points. The new circuit will link about 40 of the largest cities in the country in a coast-to-coast and border-to-border net. This will reduce congestion on regional circuits and result in faster service to pilots.

◆ ◆ ◆

Jet Intakes—To evaluate requirements for air inlet screens on jet aircraft, Air Materiel Command has requested the support of various commands. All USAF activities operating jet aircraft in the U.S. and Alaska will report monthly the number and type of aircraft found to contain foreign particles and the number and type of particles found in the air inlet ducts. Compressors of jet engines are damaged when foreign material is pulled through the screens.

◆ ◆ ◆

Instrument Approach—The missed approach for Mitchel AFB has been changed upon the recommendation of New York Air Traffic Control. The change was made in order to expedite traffic in the New York area and for ATC to have complete control over all traffic on IFR flights in the Mitchell area. The new procedure will be published in T.O. 08-15-3 and PHACUS.

Cross Feed

FLYING SAFETY
IDEA EXCHANGE

RESCUE SIGNALS

IDAHO RANCHERS, hunters and other persons likely to need emergency assistance have been briefed on how to signal passing aircraft. The 190th Fighter Squadron of the Idaho Air National Guard, in cooperation with newspapers in that state, has published with illustrations the Air Force system used to signal rescue planes when military personnel crash-land in the wilderness.

Through the use of the signals, which can be tramped out in the snow, or made with strips of cloth, pieces of wood, brush or piled up stones, isolated civilians could carry on a fairly complete conversation with planes overhead. Since the standard air rescue system is used, it provides those needing emergency assistance with a simple code consisting entirely of a combination of straight lines.

For example: "Require doctor, serious injuries, am unable to proceed, probably safe to land here," could be spelled out with the use of six straight lines—a vertical line for "require doctor, serious injuries," a cross for "unable to proceed," and a triangle for "probably safe to land here."

Squadron members believe that widespread use of the standard rescue signal system during last winter's blizzards and subsequent air supply operation would have saved considerable time and effort.

MAJOR ROBERT FITZSIMMONS
IDAHO AIR NATIONAL GUARD

HARNESS RECOMMENDED

IN CASE an emergency requires the manual extension of a main gear in a B-36, the engineer or delegated crew member makes his way on the catwalk inside the wing to the wheel well. He then performs the procedure for manually lowering the gear in accordance with T.O. O1-5EUB-1.

Airspeed is reduced and the engine behind the corresponding gear is feathered so as to eliminate the possibility of the engineer striking the rotating propeller in the event he slips and falls from the nacelle.

If the locking jack does not fully extend, the crew member must free it by kicking the jack with his foot. In case he slips while doing this, there is a strong possiblity he will fall from the airplane. Therefore, it is recommended that a harness be designed for the engineer to wear while performing emergency extension of the gear. This harness should be made of simple design, attached by ring fasteners, and with a static line of sufficient length to allow the man to work freely but not allow him to fall far enough to become entangled in the main gear or hit a propeller.

CAPT. GEORGE J. BENEDICT
11TH BOMBARDMENT GROUP

OFF COURSE

IN A RECENT Weekly Activity Report sent Air Rescue Service Headquarters from our unit at March AFB, I found a good example of the type of flying which gives ARS lots of unnecessary work and worry.

A pilot took off from Williams AFB, Chandler, Arizona, at 2032 one night for Long Beach AFB, California, estimating two hours en route. After the pilot's ETA had run out, Flight Service advised the March ARS unit that a B-26 was overdue. An alert was called and a communications search begun. At 2242 it was learned that the pilot had reported over Las Vegas, Nevada. Las Vegas is 170 miles north of the airway between Williams and Long Beach. To cap it off, the pilot gave as his reason for being over Las Vegas, that he had taken the wrong range leg out of Needles. That explanation is interesting in view of the fact that Needles itself is approximately 110 miles north of the airway between Williams and Long Beach and is less than 200 miles from the pilot's departure point.

Any pilot who gets 110 miles off course in less than 200 miles then tries to get back on course by taking up a heading 110 degrees to the right of a true course to his destination must work pretty hard at the job of getting lost. We're inclined to wonder how this pilot, supposedly qualified to fly the B-26, got through his navigation training.

CAPT. J. B. MCCARLEY, II
HQ AIR RESCUE SERVICE

SUNDAY AFTERNOON

AFTER spending one Sunday at the Air Route Traffic Control center in Pittsburgh, I'm convinced more information on instrument flight rules should be made available to Air Force pilots, Regular, Reserve and National Guard.

The apparent lack of knowledge on the part of Air Force pilots in flying weather that day was astounding to me. How any pilot could shirk his responsibility as one aircraft commander did and clear through known severe icing conditions in a plane without de-icing equipment is beyond comprehension. Not only did this pilot throw aside his good judgment by clearing into the ice, but after encountering it he hastily let down to a lower altitude without ARTC approval. This pilot made four position reports over the same point all within 12 minutes. Better he should have stayed in bed that day.

If a pilot could only see the utter confusion which results from situations such as this he would start realizing the foolishness of his actions. Commercial airliners and other military planes were boring through the area on their assigned altitudes and it was just a case of pure luck that there wasn't a collision.

My flighter is doffed to the pilots of MATS and SAM. They are a real credit to the Air Force and are highly respected by CAA controllers. The men who make airway traffic click are often perturbed at military pilots because of the trouble they cause when IFR conditions exist. After spending an afternoon visiting a control center I'm of the opinion that other pilots would agree that their apprehension is warranted.

CAPT. DAVID F. MCCALLISTER
DELAWARE AIR NATIONAL GUARD

TWENTY SALESMEN

THE FOLLOWING suggestion is submitted in the belief that it will, if used, increase the number of persons selling flying safety. The idea is far from new and is relatively simple. It's being used in the field of advertising with astounding results. In fact, the National Safety Council uses this medium in its attempt to further ground safety throughout the nation, and certain air bases have adopted it.

The suggestion is simply this: print air safety slogans, progressive safety suggestions and various safety ideas or reminders on the covers of the expendable book matches. With the cooperation of the Base Post Exchanges, Officers' Clubs and Airmens' Clubs throughout the Air Force it would be possible to have thousands of these book matches working for Flying Safety. By simply having safety suggestions, flight planning tips, reminders to use checklists, etc., printed in the space usually used for advertising, the entire family of civilians, airmen and officers of the USAF would think and talk air safety every day.

CAPT. DAVID J. HAVARD
LANGLEY AFB

DOCKS FOR BOMBERS

It was a chilly October morning when the first bomber was pulled into position in readiness for a complete cleaning. This cleaning was necessary before the Superfortress was towed into final position for the "operation" which was about to begin.

When the airplane came to a stop in a "dock," skilled specialists swarmed over it, checking the maze of wires, hydraulic systems, exterior surfaces, propellers, engines, control surfaces and every piece of connecting equipment.

Within a matter of five days the task was completed, and the first B-29 Superfortress had been run through an inspection and maintenance line that is equalled in efficiency and exactness by few in the Air Force. Since that day in October of 1949, over 50 B-29's have been given the same treatment—and each has emerged ready to log hundreds of more flying hours before major maintenance is required.

Specialized maintenance, as this operation is called, originated in Strategic Air Command Headquarters, and has since reached its highest pinnacle at Walker Air Force Base. Basically, the idea stems from a system developed by Walker's CG, Brigadier General Irvine, when he was on duty in the Marianna Islands. Today, as a result of its success at Walker, eyes of other units have been focused on WAFB, watching the progress of what is technically known as 66-12.

The scheme of "docks" developed out of the necessity of having a location for each plane, where work could be performed in a minimum of time without duplicated effort. As it now operates, aircraft from each of the four flying squadrons are alloted space in hangars. These positions are the docks, where the entire inspection and maintenance process takes place.

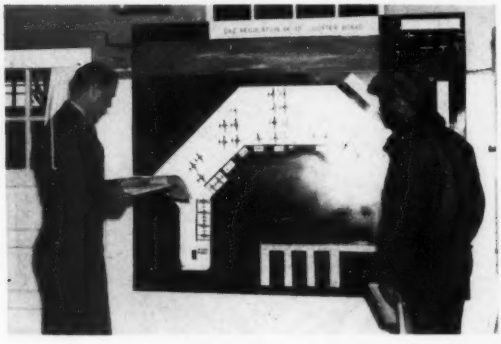
Inspections are of two classifications—intermediate and major. The major inspection is by far the more extensive. It embraces every part of the aircraft and is performed by the ground crew, assisted by air crew personnel.

As is often the case, specialists are needed for particular phases of the maintenance. Such men are obtained from the Production Control Section—and dispatched to the aircraft on which their talents are required. In addition to the many specialists a dock chief—a permanent member of this section—has been given the task of overseeing the work in his particular dock. He is also responsible for all paper work pertinent to smooth functioning.

Because of its success at Walker, plans are under way for specialists there to instruct airmen and officers from other installations in the refinements of specialized maintenance, and to help them establish similar systems of their own.

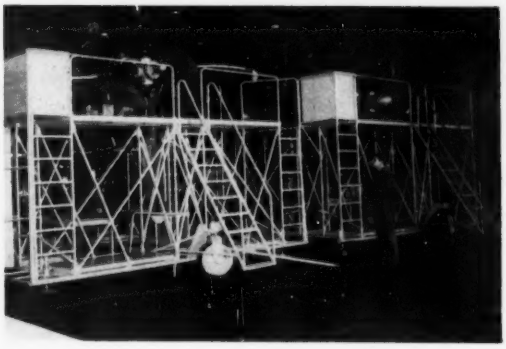
Major Perier A. Koenig, Wing Aircraft Maintenance Control Officer, and Captain Woodrow W. Yarborough, Assistant Aircraft Maintenance Officer, keep a daily check on the locator board. The B-29 models are of metal and can thus be moved to any location on the magnetized steel board.

With everything at their fingertips, flying and ground crews can accomplish much in one day. Their system of "docks" is working with great efficiency at Walker AFB.



The dock chief is responsible for work performed at this station. Overseeing the job done by flying personnel and ground crew takes an experienced man. The availability of tools and equipment make inspections and maintenance a much easier and more efficient task.

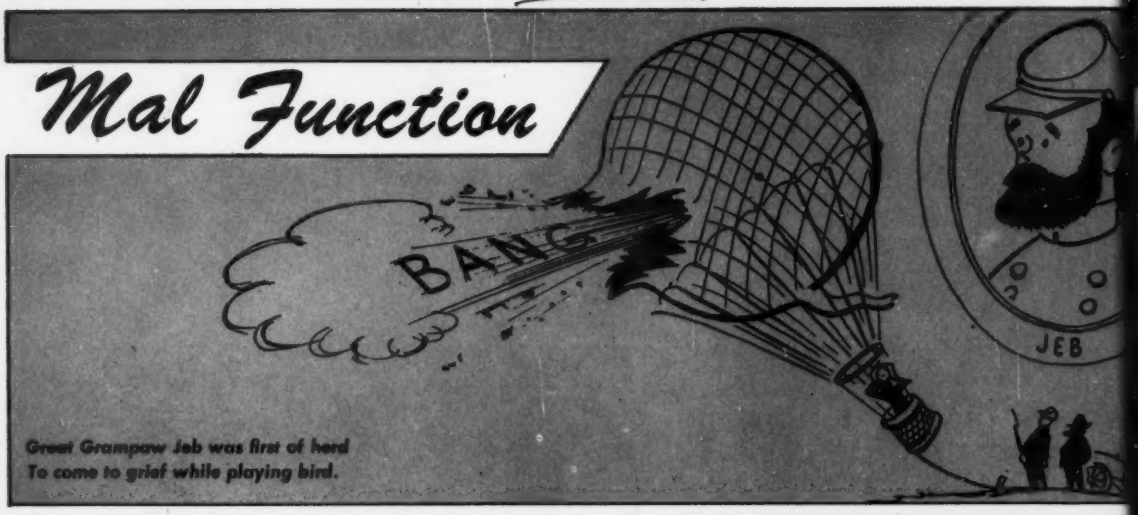
Each squadron is allocated a space in the hangar. Its designated location is known as the plane's dock. It is here that all inspection and maintenance is done by flying and ground crews.



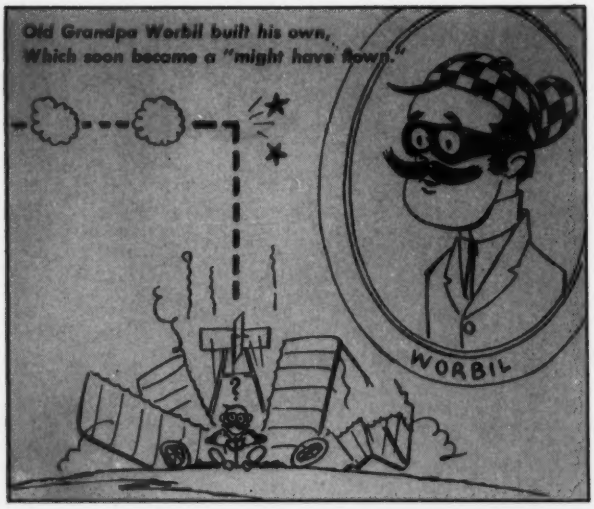
WHY?

THE PLANE was in front of operations ready to go. After the engines were started, the pilot and copilot noticed that the landing gear system hydraulic pressure was excessive. The copilot directed the flight engineer to equalize pressure. Reaching forward, the engineer unlocked the landing gear safety latch and raised it to the full unlocked position. He did not remember if he also raised the landing gear control handle. As soon as he felt the airplane begin to settle he returned the latch to locked position, but the gear folded, causing damage to the gear assembly, left engine, propeller and wing.

Mal Function



Great Grampaw Jeb was first of herd
To come to grief while playing bird.



Old Grandpa Worbil built his own,
Which soon became a "might have flown."

Pa, Aces Function made folks say
That flying wasn't here to stay.

We all know Mal, with lumpy pate
(The best shape he's been in of late.)

Mal's got a son, and though he's small,
He'll go the farthest of them all.
The recipe for their success
Is never think, and always guess.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1950—85

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